Remarks

The claims presented in this application relate to prediction and optimization of a communications system having multiple channels, by predicting performance of plural channels using plural parameters to characterize each channel, and using a transfer function model that is "simulated using physical configuration information of the communications system".

There are substantial advantages to the claimed method and system, particularly, that they allow systematic improvement to a communication system without excessive field interaction with that system. Specifically, the use of transfer function simulations based on physical configuration, avoids the need for testing in the field, avoids waiting for downtime to do such testing, and avoids consuming communications resources to do such testing while the communication system is live and operative. The Examiner will appreciate that such simulation is an important improvement and enhancement over systems that rely upon actual measurement of transfer functions.

The Examiner's rejection of the independent claims states that the Gaikwad Patent (6,317,495) discloses creating a transfer function model that is "simulated using physical

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configuration information of the communication system", as claimed. Applicant respectfully disagrees with the Examiner's rejection in this regard, as Gaikwad does not disclose such a capability.

The Examiner's rejection of claim 1 on page 3 of the Office Action, references Figure 15 of Gaikwad as showing a "simulated" transfer function model. Applicant respectfully submits the Examiner is incorrect. Figure 15 of Gaikwad referenced by the Examiner, includes a step 410 "determine channel transfer function", but there is no statement in the figure as to how that transfer function is determined. The accompanying text at col. 22, lines 52 also simply states that the method involves "determining a channel transfer function of the communications channel". There is no statement as to how that transfer function is determined.

Gaikwad does not elaborate step 410, "determining a transfer function", for the reason that Figure 15 deals with an alternate embodiment of the Gaikwad disclosure (i.e., using frequency binning as state at col. 22, lines 34-35). Details are not described because they are unchanged from the embodiments already presented. In those earlier embodiments, at col. 9, lines 30-33, it is stated that "[t]he transfer function and the interference characteristics may be determined by measurement or

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they may be received from a remote or local analyzer or memory
storage." Further elaborating, at col. 16, line 53 to col. 17
line 11, there is a discussion referencing Fig. 9, and the step
210 "determine channel transfer function" which is identical as
stated to step 410 of Fig. 15 upon which the Examiner relies.
The text states that "[d]etermining the channel transfer function
in step 210 of Fig. 9 may be done by directly measuring it. ...
Alternately, the channel characteristics may be determined in
advance of the communication and stored, for example in a
database at the CO or in a memory on a DSL card."

Applicant submits that the methods Gaikwad describes
for determining a transfer function involve measurement, either
during a communication, or before the communication. No other
methods are referenced, and more specifically, simulation is not
mentioned. Indeed, at col. 19 lines 5-8, Gaikwad specifically
states that "the channel transfer function may be determined at
power-up fo a transmission system, at regular intervals in time,
or in response to temperature changes, or at other appropriate
times." Each of these examples involves use of the transmission
system to create a transfer function, i.e., measuring the
transfer function from the system, at particular times when the
communications system is powered up. This is not "simulat[ing]

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using physical configuration information of the communications system," as claimed.

In light of the foregoing, Applicants submits that the Examiner's rejection of independent claim 1 is in error and should be withdrawn.

The Examiner's rejections of independent claims 13, 20 and 30, on pages 3-4 of the Office Action, fail to indicate why the Examiner believes that Gaikwad discloses "simulated" transfer functions, as recited in each of those claims. Applicant therefore submits that claims 13, 20 and 30 are patentable over Gaikwad and that their rejection should be withdrawn.

As this foregoing explains the allowability of each of the independent claims, Applicant submits that all claims are allowable, and requests early transmission of a Notice of Allowability. Applicant disagrees with the Examiner's rejection of the dependent claims and the reasons therefor but for the sake of brevity those issues will not be addressed here.

If a telephone conference would helpfully advance prosecution, the Examiner is invited to contact the undersigned at the number provided. If any petition for extension of time is necessary to accompany this communication, please consider this paper a petition for such an extension of time, and apply the appropriate extension of time fee to Deposit Account 23-3000. If

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any other charges or credits are necessary to complete this
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Respectfully submitted,
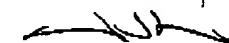
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